G. J. Symons, been reproduced in *facsimile* by photography, translated from the monkish Latin of the original text by Miss Parker, and published in a handsome small folio volume, of which one hundred copies have been printed. It is probably, as stated on the title-page, the earliest known weather journal in the world.

The manuscript consists of nine and a half pages of abbreviated Latin, written on vellum in a distinct and easily decipherable text, and is apparently in excellent preservation. It is bound up with a number of other manuscript treatises (one of which is also by Merle) dealing with weather prognostication, astrological lore, and other subjects which, according to the scientific views of the day, were nearly related branches of knowledge. Some of these treatises were collected, and some written by, William Reed, who was Bishop of Chichester from 1369 to 1386, and who bequeathed them to scholars of Merton, "being of his kin." Subsequently, the volume passed into the possession of Sir Kenelm Digby, who, in 1634, presented it, together with other manuscripts, to the Bodleian Library. It is interesting and not uninstructive to note how modest a figure is cut, in this scientific record of the fourteenth century, by the few pages of original observation amid the mass of speculative writings in which they are buried; and how in the nineteenth century they alone retain all their pristine value, and are resuscitated with all the honours of *facsimile* reproduction, while the learned treatises on the conjunctions of the planets, the lunar mansions, and rules for prognosticating the weather, are left undisturbed in the musty dignity in which they have reposed for more than five centuries.

As already remarked, Merle's entries are at first very brief, the notice of each month's weather seldom exceeding two lines of the manuscript. Thus for January 1337 we find:—

> "In January there was warmth with moderate dryness, and in the previous winter [or the previous part of the same winter?] there had not been any considerable cold or humidity, but more dryness and warmth."

Gradually, however, the notes expand, and it is not a little interesting to trace how by degrees the journalist's growing interest in his probably novel undertaking leads him to record more and more in detail the facts that present themselves to his daily observation. Thus from a brief general summary of the characteristic weather of the month, as illustrated in the above quotation, at the end of the year he proceeds to record the character of each week, and towards the end of the third year (1339) he begins to notice the weather of a few special days. From the beginning of 1340 greater amplification is indulged in: the monthly notes often expand to six or eight lines, and in the final year of the record (1343) sometimes to from ten to fourteen lines. In illustration of these more detailed entries, the notice for July 1343 may be quoted:—

> "July.—Considerable heat on the first five days, and it was great on the 3rd and 4th. On the 4th, two or three hours before sunset, heavy thunder began with more vivid lightning than I think I had ever seen, which lasted until midnight, with heavy rain. 5th, light thunder about sunset. On the 6th day and throughout the second week it was gloomy, and there was a slight fog occasionally. 12th, light rain; 14th, gloomy; 15th, and three following days, considerable heat; 19th, rain which penetrated a good deal; 20th, light rain; 22nd, rain; 25th, heavy rain, with heavy thunder in the night, and also in the morning of the following day. All the remainder was rainy, with fog, and rain in small drops, and it was gloomy the whole time. 28th in the night, and 29th in the morning, thunder, with heavy rain. There was lightning with the last two thunderstorms."

For the last four years, indeed, Merle's notes are sufficiently ample to allow of a fair estimate of the weather of those years in comparison with that of the present day, and perhaps some such comparison may be instituted by those who have at command the ample registers of our own time for the same part of Lincolnshire. Seeing how great have been the changes wrought in the character of the surface of the country, by the clearing of forests, drainage, and the extension of agriculture, such a comparison may possibly furnish matter of great interest.

The fourteenth century is sadly memorable for the disastrous famines and pestilences that then desolated England, and above all for the "Black Death," which half depopulated the realm, and was nowhere more fatal than in East Anglia. But this last did not make its first appearance until the end of 1348, about a year after Merle's death, and nearly five years after the conclusion of his journal, which ends abruptly with January 1344; and although a severe famine is recorded in 1335, and another in 1353, it does not appear that any of the years included in his register was especially disastrous. The famine of 1335 is said to have been due to excessive rain, and we may perhaps hazard the surmise that the recent memory of this visitation was the stimulus that induced Merle to record these interesting notes, which good fortune has preserved for us through five and a half centuries.

H. F. B.

OUR BOOK SHELF.

The South Italian Volcanoes. Being the Account of an Excursion to them made by English and other Geologists in 1889, under the auspices of the Geologists' Association of London, with Papers on the Different Localities by Messrs. Johnston-Lavis, Platania, Sambon, Zezi, and Madame Antonia Lavis; including the Bibliography of the Volcanic Districts, and Sixteen Plates. Edited by H. J. Johnston-Lavis, M.D., F.G.S., &c. Pp. 342. (Naples: F. Furchheim, 1891.)

In this useful volume, Dr. Johnston-Lavis has issued reprints of his report on the Italian excursion made by the members of the Geologists' Association under his direction, and of his abridged sketch of the geology of Vesuvius and Monte Somma, already noticed in this journal. These reprints are accompanied by several interesting original papers—namely, one on the thermo-mineral and gas springs of Sujo, near Roccamonfina, by Dr. Johnston-Lavis himself; one on the geology of Acireale, by Signor G. Platania; another entitled "Notes on the Eolian Islands and on Pumice-stone," by Dr. L. Sambon; and lastly a chapter on "The Travertine and Acque Albule in the neighbourhood of Tivoli," by Signor Pietro Zezi. These various memoirs occupy 88 pages of the volume, the remainder being devoted to a very useful bibliography of Italian vulcanology, compiled by Dr. Johnston-Lavis and Madame Antonia F. Lavis.

Not the least valuable portion of the work is the series of beautiful photographs taken by Dr. Johnston-Lavis from

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well-selected points of view, and admirably reproduced as small quarto plates. These plates are striking illustrations of what can be accomplished by instantaneous photography as an aid to vulcanological study. Among them are very instructive views of explosive outbursts from the craters of Stromboli and Vulcano. In the case of the small explosions from the first-mentioned volcano, the ejected fragments are seen in the midst of the steam-clouds; and in the case of the more violent eruptions from Vulcano several phases in the same outburst have been caught at intervals of a few seconds. Those who already know this very interesting district will be glad to have their recollections revived by these admirable plates; and those who have never had the pleasure of visiting the South Italian volcanoes may obtain from these remarkable photographs a much better idea of the localities than any descriptions or drawings can possibly give.

Buried Cities and Bible Countries. By George St. Clair, F.G.S. (London: Kegan Paul, Trench, Trübner, and Co., 1891.)

Everyone knows that recent archæological research has brought to light a vast number of facts which are directly or indirectly connected with ancient Hebrew history. The object of the author of the present work is to set forth the more important of these facts, and to explain their significance. He deals with the results of exploration in Egypt, Palestine, and Mesopotamia; and he has a chapter on Jerusalem, with regard to the topography of which he has been led to conclusions different from those of other writers. The book has been prepared for the benefit of persons "who have no time to follow the course of exploration, and no taste for technical details"; and readers of this class will find in it much that will be to them both new and interesting. The value of the text is increased by good maps, plans, and other illustrations.

Food, Physiology, &c. By William Durham, F.R.S.E. (London and Edinburgh: A. and C. Black, 1891.)

This is the third volume of a series by Mr. Durham, entitled "Science in Plain Language." The author does not pretend to say anything new, but he has brought together, and arranged clearly, a mass of facts which will no doubt be of interest, and may be of practical service, to many readers who have neither time nor inclination for the study of more elaborate treatises. He begins with the consideration of solid and liquid foods, then gives some account of the constituents of food, and finally sketches the structure and functions of the bodily organs.

Blackie's Science Readers. (London: Blackie and Son, 1891.)

The aim of this series is to arouse the interest of children in the common objects of the natural world, and to give them some insight into the processes by which articles of ordinary use are produced. The idea is excellent, and has been very successfully worked out. The series consists of five little volumes, the first two of which present some "lessons on common objects." From the third volume the reader will learn something about the simple principles of classification; about substances used in arts and manufactures; about phenomena of earth and atmosphere; and about matter in three states—solids, liquids, and gases. The fourth and fifth volumes—by the Rev. Theodore Wood—deal with animal and plant life. The facts set forth have been carefully selected, and they are presented in a bright, easy, natural style which cannot fail to make them at once intelligible and attractive. Good teachers will find the series of real service in helping them to foster in the minds of their pupils a love of accurate observation and independent reasoning.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* Nature. *No notice is taken of anonymous communications.*]

Comparative Palatability.

With the view of supplementing the experiments carried out last year by Mr. F. Finn and myself (Nature, vol. xlii. pp. 571, 572), I have been feeding, during August and September, specimens of the common frog and toad.

Among Hymenoptera, *Bombi* are readily taken by frogs. I have records of *B. lapidarius* (drones and workers), *terrestris* (queens and workers), and *muscorum* (drones and workers). On one occasion only a freely-feeding frog refused to attack for the second time a large queen of *terrestris*, which had stung its mouth. Many of the insects were, however, thus taken at the second attempt. The common wasp was eaten eagerly by frogs and toads. I was again unfortunate in not taking any *Chrysididæ*. *Sirex gigas* was attacked both by a frog, for which it seemed too large, and by a toad, under whose lip it appeared to insert its ovipositor. Neither animal ventured to seize it again—certainly for an hour or so. I was then obliged to abandon the observation. I could get no large ichneumons.

Of Lepidoptera, *Vanessa urticæ* was taken by frogs and toads, and *V. io* by a frog. Three or four specimens of *Pieris rapæ* and *napi* would be taken in succession by a frog, which also ate *P. brassicæ*. The insects' flutterings did not seem to matter: more than once they were taken on the wing. A toad once took *P. rapæ*. I was surprised to see a frog seize a dead specimen of this butterfly, which had been lying for several hours in the inclosure. It was partially swallowed, but rejected after some seconds—having unfortunately been taken together with some cedar needles. *Plusia gamma* was eaten eagerly by both frogs and toads. Hairy caterpillars (*e.g.* of *Orgyia antiqua* and *Spilosoma* sp.) were taken by a frog. Smooth green larvæ were eaten greedily.

Of Diptera, *Eristalis tenax* was eagerly seized by frogs and toads. A red-tailed, long-winged fly was eaten by a frog.

Blatta orientalis was taken without hesitation; as were, of course, earthworms.

Of three frogs under observation, only one was of much working value. This specimen (a male) became in a fortnight so tame as to attempt to take the handle of the butterfly net with which I placed the insects, &c., in the inclosure. This fact recalls Mr. E. B. Poulton's observation, that his tree-frogs seized the end of the forceps with which food was given them.

It is, perhaps, worthy of notice that the larvæ of the blow-fly, though eaten eagerly by toads, are frequently passed whole from the body; and would, therefore, seem to be with difficulty digested.

Want of time has prevented my experimenting, as I had wished to do, with *Salamandra maculosa*. Mr. F. Finn offered a specimen to ducks, which will eat the small newt, and found that though more than one bird observed it, and one even ran towards it, it was not touched. The observation extended over more than an hour.

E. B. Titchener.

Mote House, Mote Road, Maidstone, September 25.

Alum Solution.

Dans le no. 1141 de votre excellente Revue, M. Napier Draper demande pour quelle raison la solution d'alun a été universellement adoptée pour l'absorption des radiations de grande longueur d'onde. Ce n'est point pour répondre à cette question que je vous écris, car, pas plus que votre correspondant, je ne connais d'expériences directes suffisamment exactes desquelles il résulterait que la solution d'alun absorbe plus que l'eau pure. Je hasarderai, cependant, une explication: l'eau est un des liquides transparents les plus absorbants; l'alun occupe un rang analogue parmi les solides; en dehors de toute vérification, si l'absorption sélective de chacun de ces corps s'exerce sur une partie différente du spectre, on peut supposer que leur mélange exerce une absorption plus complète que chacun des corps pris isolément.

A cette occasion, je prendrai la liberté de relever une erreur que l'on a fréquemment commise dans ces derniers temps au sujet de l'absorption des radiations infra-rouges par l'eau. On a

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